

FIG. 1

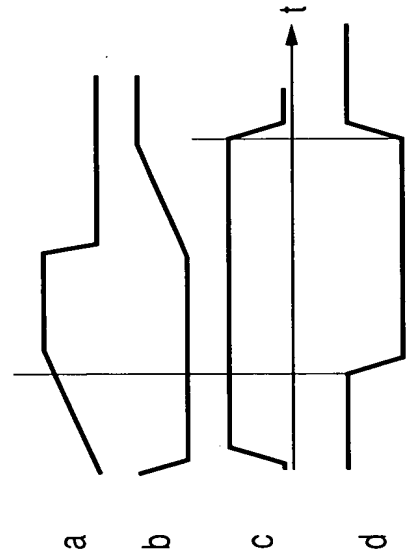
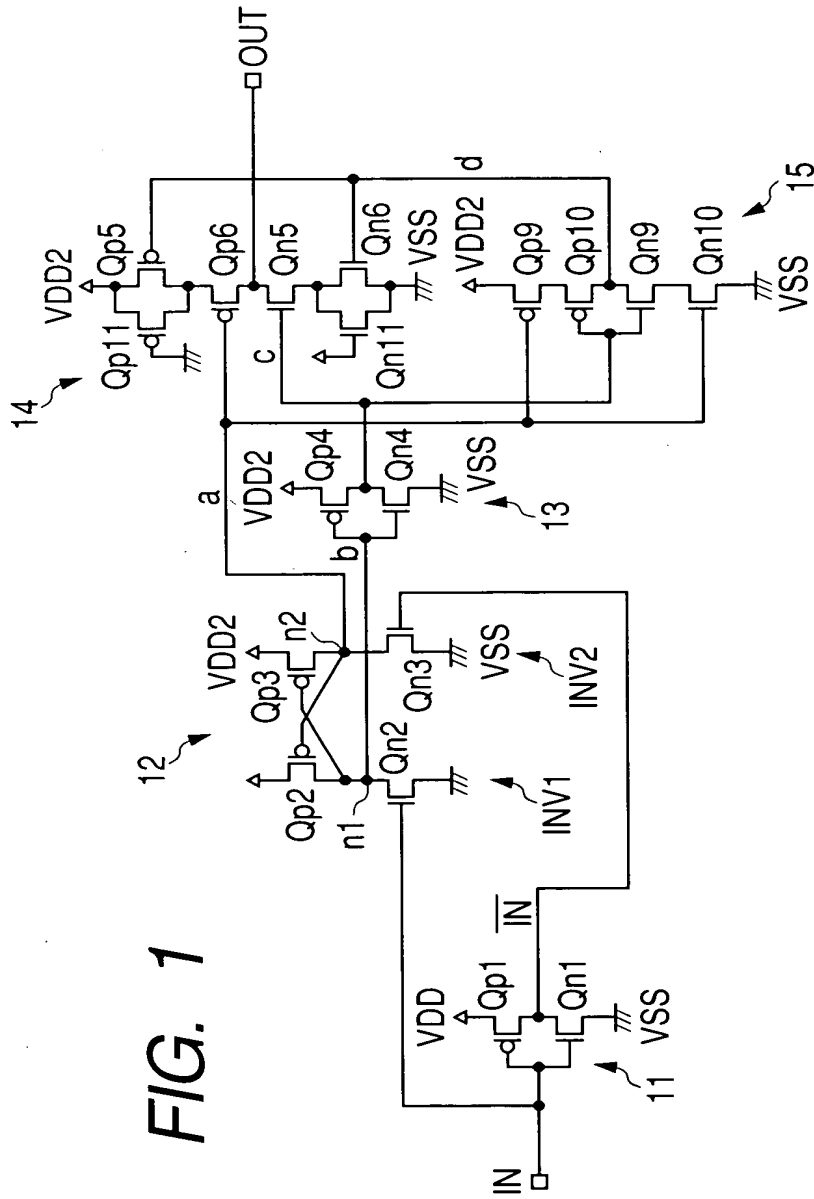


FIG. 2

2 / 10

FIG. 3(A)

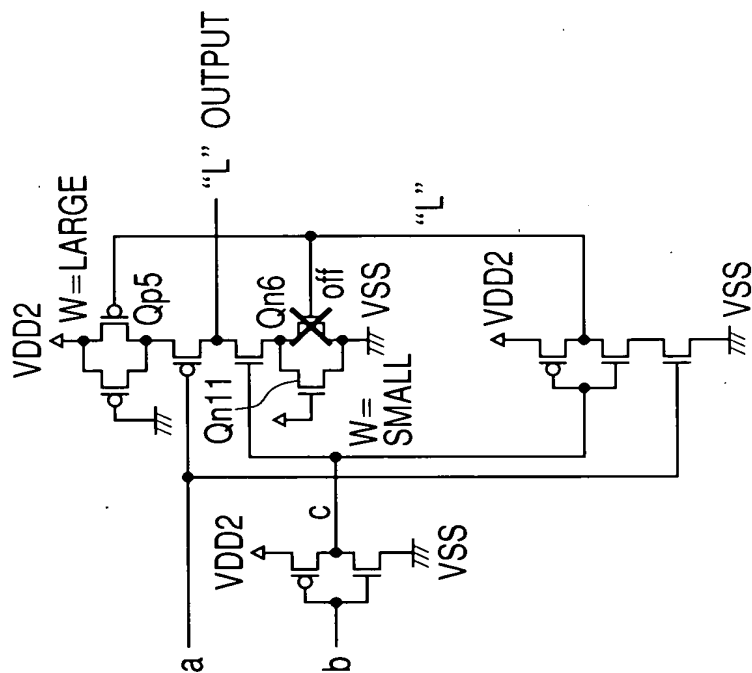
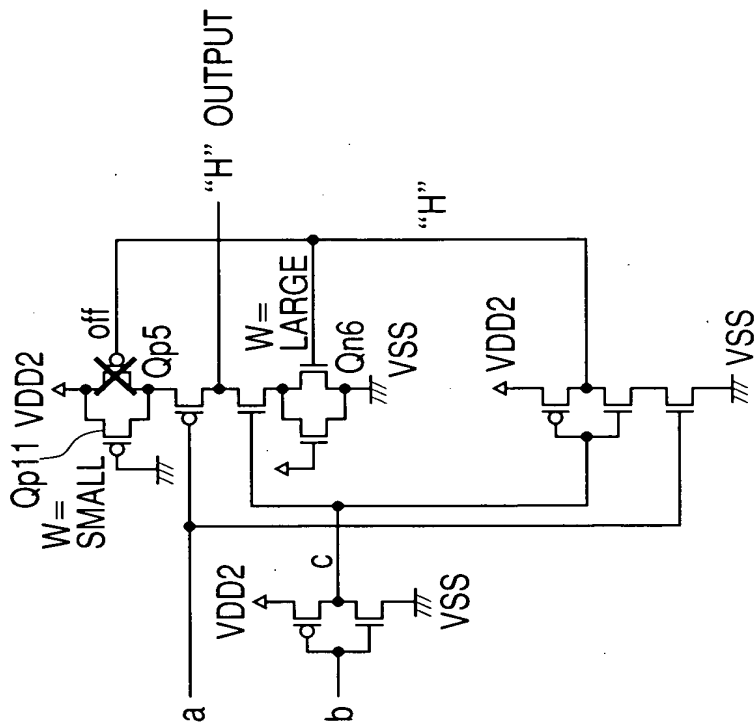


FIG. 3(B)



3 / 10

FIG. 4

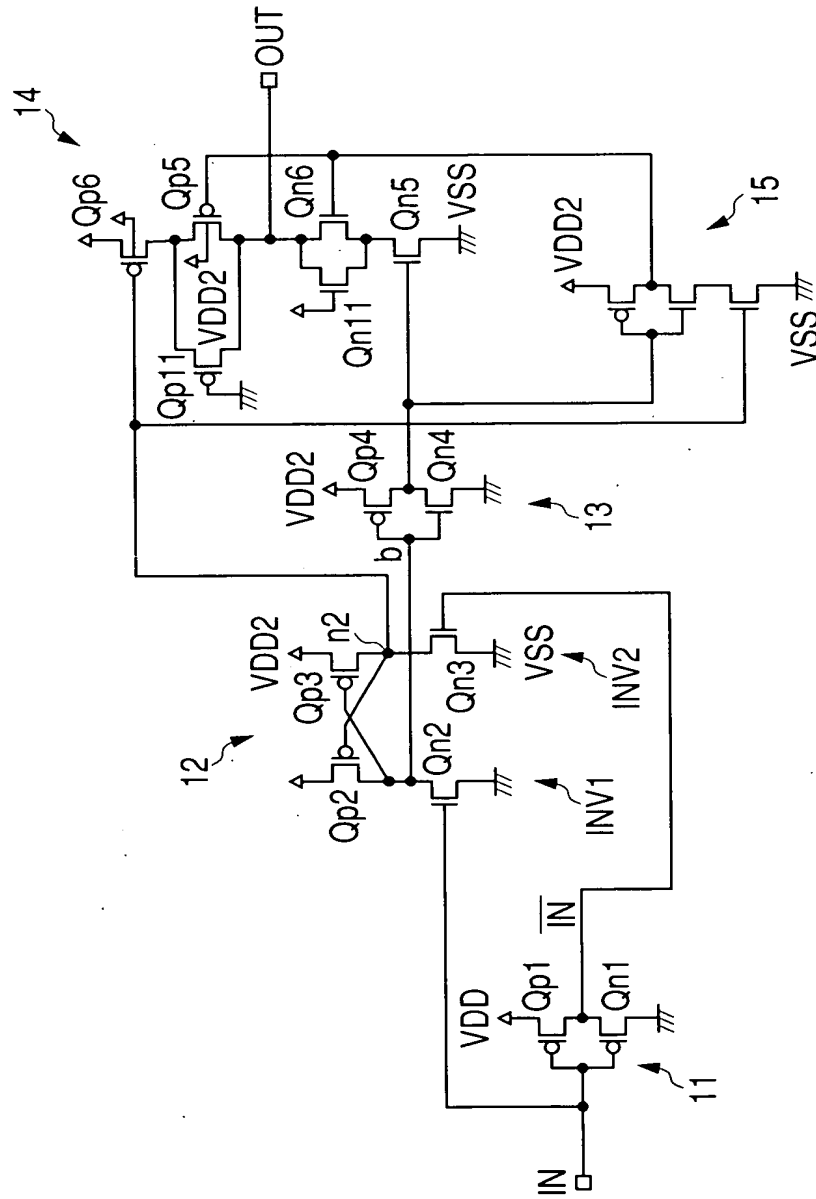
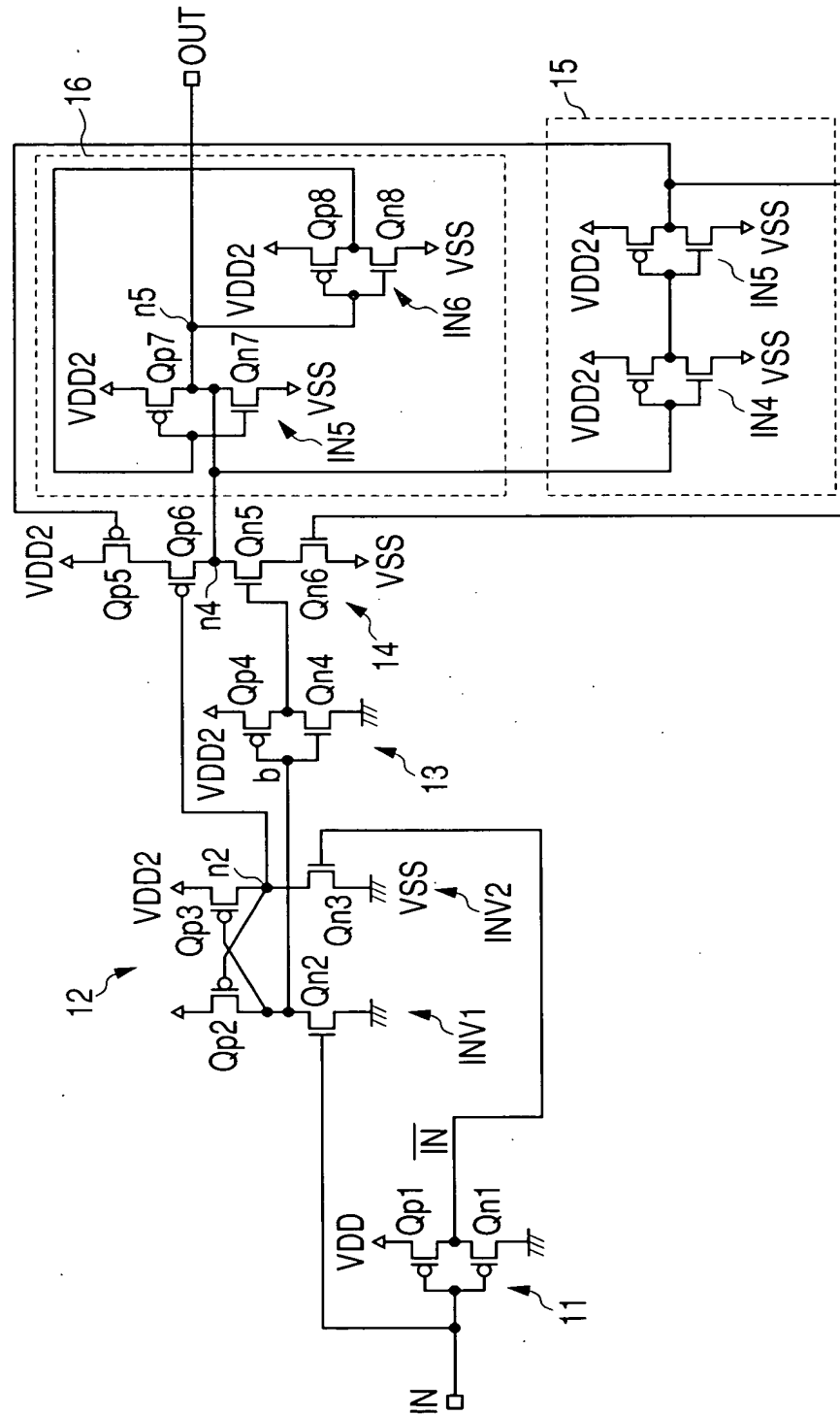


FIG. 5



The circuit diagram illustrates a multi-stage CMOS amplifier. It begins with an input stage (11) consisting of a PMOS transistor Qp1 and an NMOS transistor Qn1, biased by a tail current source. The output of this stage is connected to a second stage (12), which is a differential pair of PMOS (Qp2, Qp3) and NMOS (Qn2, Qn3) transistors, biased by a tail current source. The differential outputs of stage 12 are connected to a third stage (13), which is a common-source NMOS amplifier (Qn4) biased by a tail current source. The output of stage 13 is connected to a fourth stage (14), which is a differential pair of PMOS (Qp5, Qp6) and NMOS (Qn5, Qn6) transistors, biased by a tail current source. The differential outputs of stage 14 are connected to a fifth stage (15), which is a differential pair of PMOS (Qp7, Qp8) and NMOS (Qn7, Qn8) transistors, biased by a tail current source. The final differential outputs of the circuit are labeled OUT.

6 / 10

FIG. 7

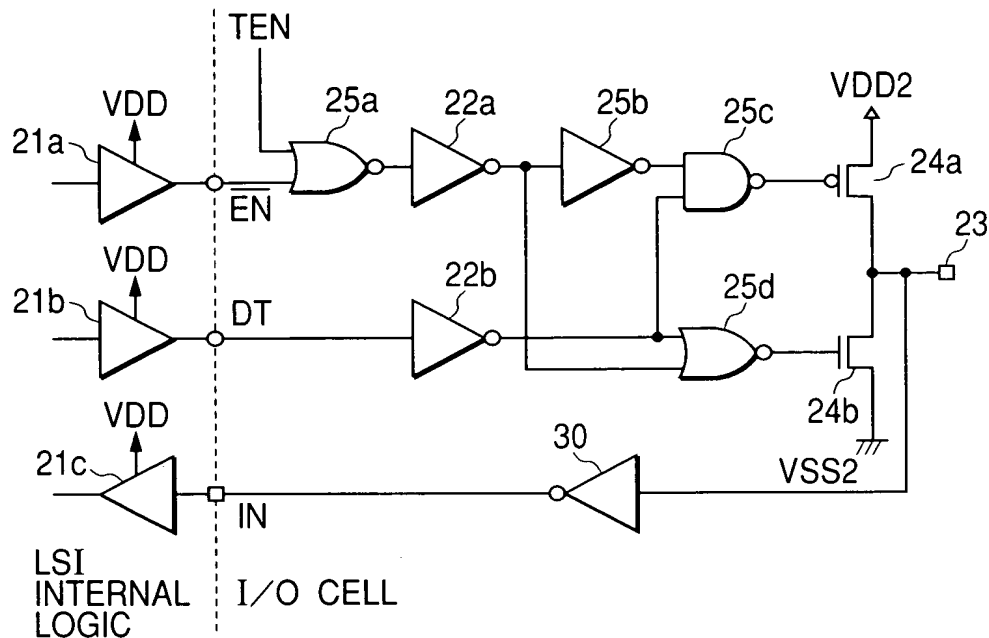
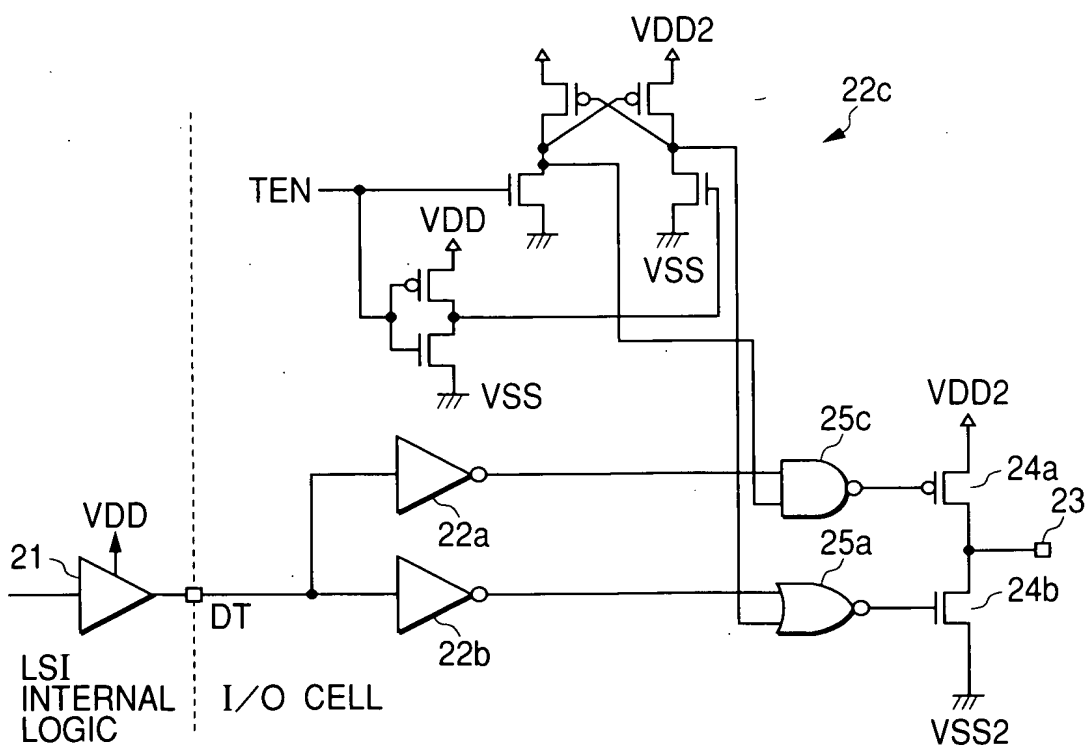
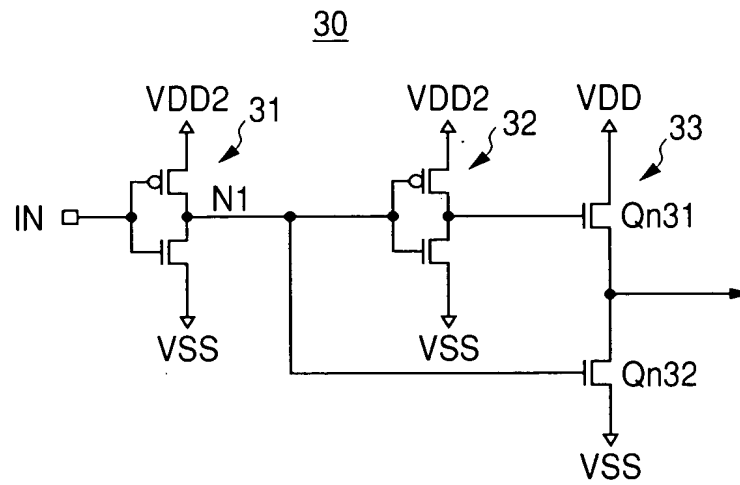
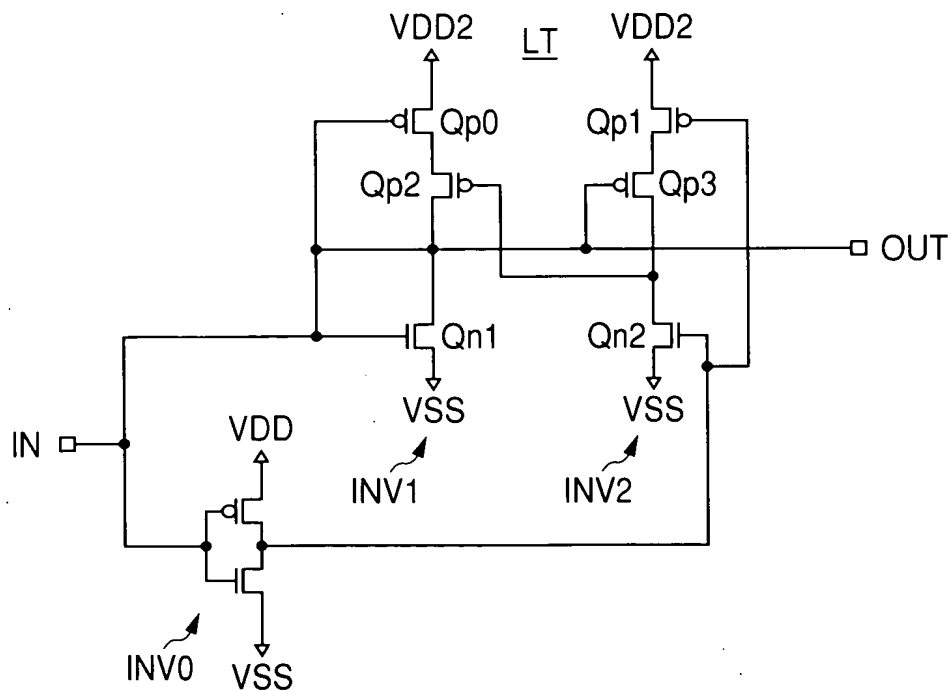


FIG. 8

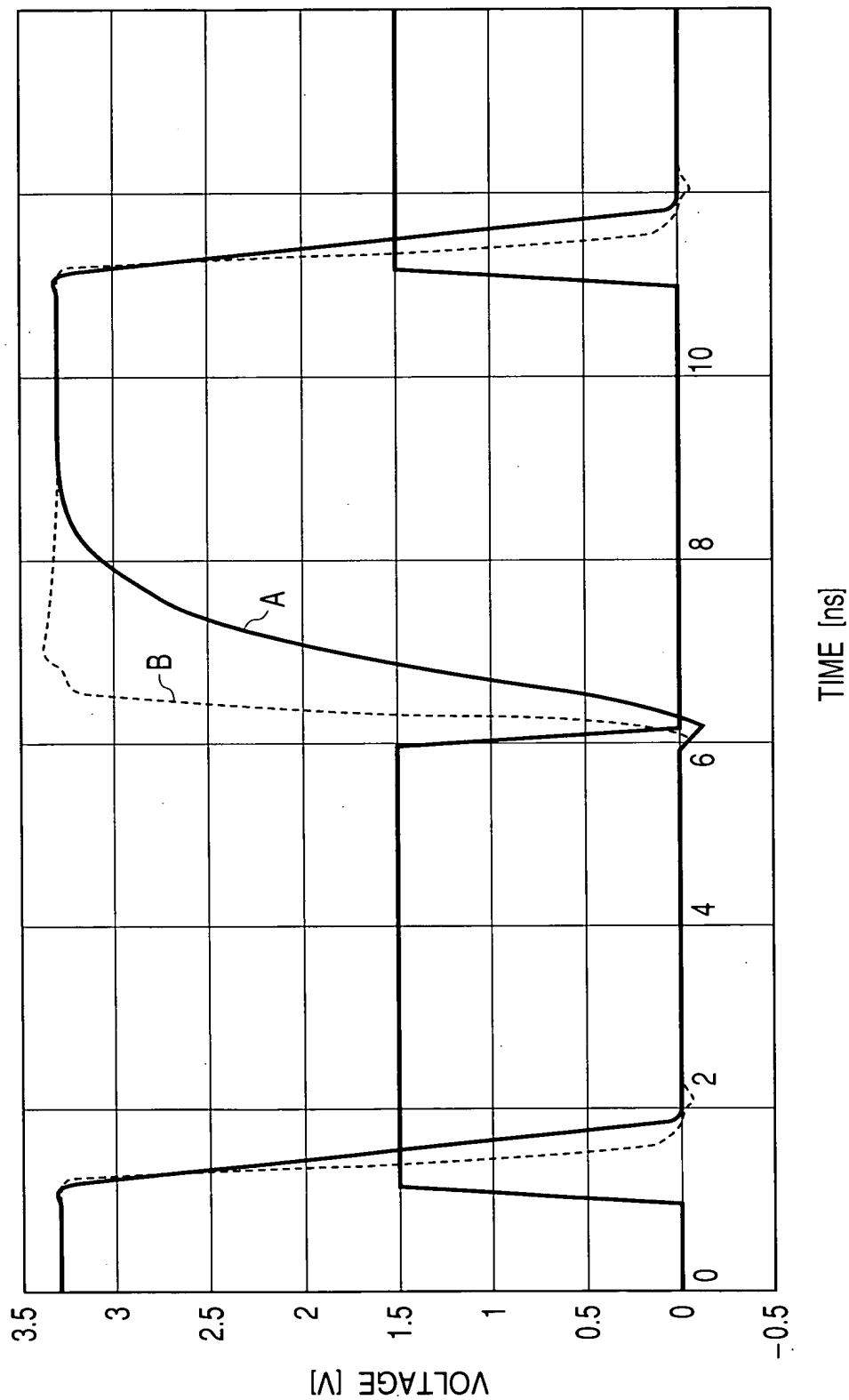


7 / 10

FIG. 9**FIG. 10**

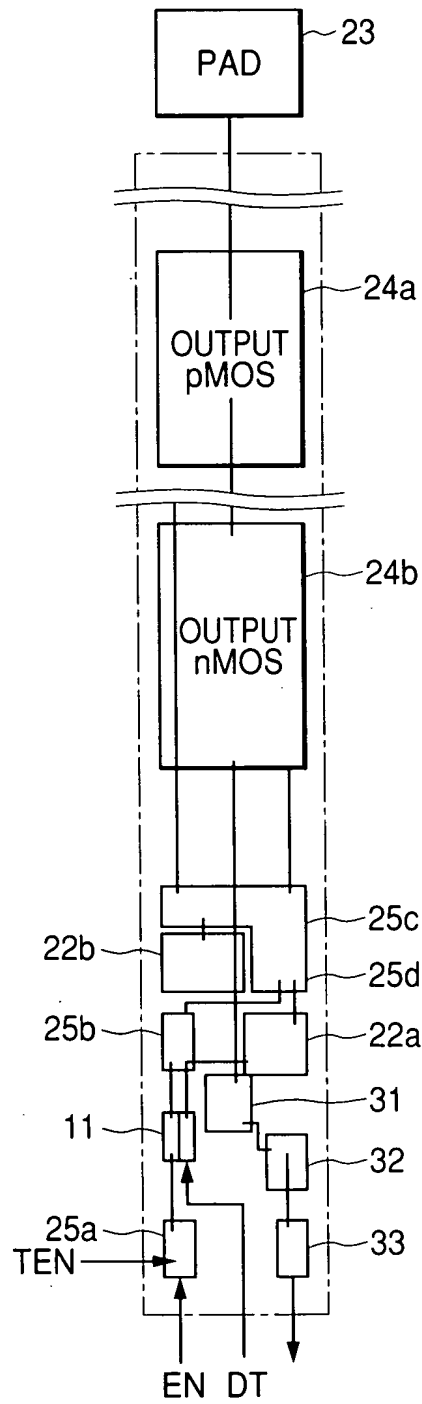
8 / 10

FIG. 11



9 / 10

FIG. 12



09976052.101501

10 / 10

FIG. 13

